

AMENDMENTS TO THE CLAIMS

1-2. (Cancelled)

3. (Currently Amended) An isolated ~~The~~ gene encoding a protein that catalyzes the biosynthesis of piperitol from pinoresinol and the biosynthesis of sesamin from the piperitol. the protein comprising according to claim 1, wherein:
the protein includes at least one amino acid sequence selected from a group consisting of:

(a) an amino acid sequences of ~~corresponding to~~ SEQ ID NOS: 1, 64, or ~~and~~ 78;
or, and

(b) an amino acid sequences that ~~have~~ has been modified by at least one of the substitution, deletion, insertion, and addition of one to 10 ~~or more~~ amino acids to ~~an~~ the amino acid sequence of ~~corresponding to~~ SEQ ID NO: 1, 64, or ~~and~~ 78.

4. (Cancelled)

5. (Currently Amended) An isolated ~~gene including a~~ comprising a nucleotide base ~~sequence selected from a group consisting of~~ SEQ ID NOS: 2, 65, or ~~and~~ 79 as an open reading frame region.

6. (Cancelled)

7. (Currently Amended) The gene according to claim 31, wherein: the gene is derived from sesame.

8-10. (Cancelled)

11. (Currently Amended) A recombinant expression vector comprising the
~~including a gene~~ according to claim 31.

12. (Currently Amended) A non-human transformant comprising a
recombinant expression vector comprising the ~~including a gene~~ according to claim 31.

13. (Currently Amended) A producing method of a protein, comprising:
producing the ~~a~~-transformant according to claim 12; and
recovering a protein from the transformant that catalyzes the biosynthesis of
piperitol from pinoresinol and the biosynthesis of sesamin from the piperitol
~~biosynthesis of at least one of piperitol and sesamin.~~

14. (Currently Amended) A ~~The~~ transformant according to claim 12, wherein
the transformant comprises a plant, its offspring and portions thereof.

15. (Currently Amended) A method of producing at least one of piperitol and
sesamin, comprising: a step of introducing the ~~using a gene~~ according to claim 31 ~~or a~~
~~protein encoded by such a gene~~ into a host cell.

16. (Currently Amended) A method of producing a non-human transformant
containing an enhanced amount of lignan, comprising: a step of introducing the ~~using~~
~~a gene~~ according to claim 31 into a host cell.

17. (Currently Amended) A method of producing a plant containing an enhanced amount of at least one of piperitol and sesamin, comprising: a step of introducing the ~~using a~~ gene according to claim 34 into a host cell.

18. (Currently Amended) A method of producing a non-human transformant containing a reduced amount of lignan, comprising: a step of introducing the ~~using a~~ gene according to claim 34 into a host cell.

19. (Currently Amended) A method of producing a plant containing a reduced amount of at least one of piperitol and sesamin, comprising: a step of introducing the ~~using a~~ gene according to claim 34 into a host cell.

20. (Currently Amended) A method of cultivating sesame, comprising: a step of introducing the ~~using a~~ gene according to claim 34 into a host cell.

21. (Cancelled)